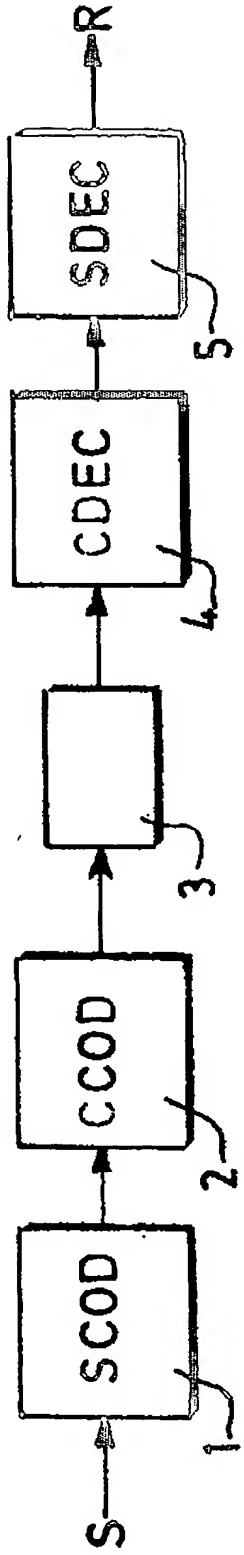


FIG.1

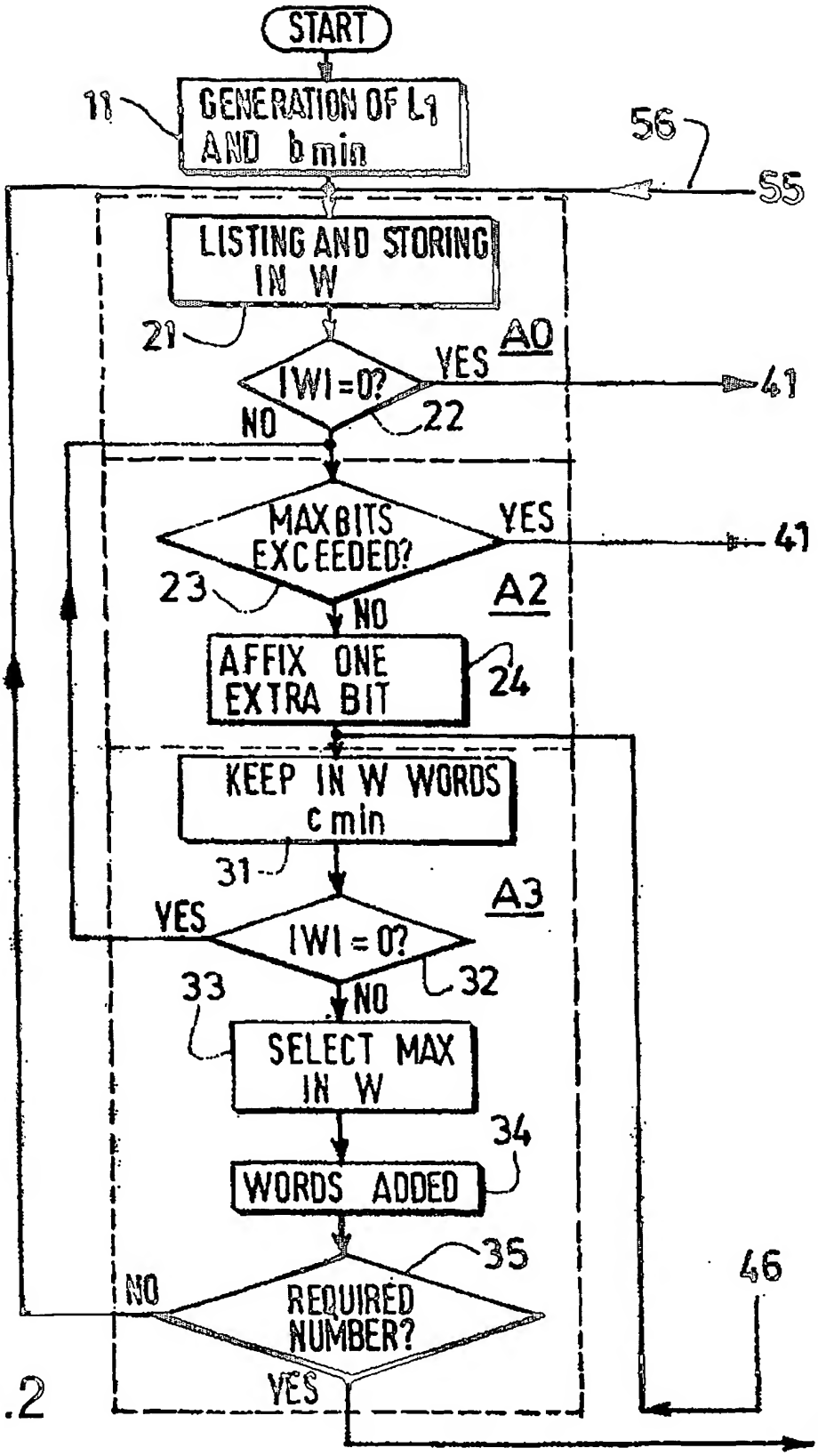

START
11
GENERATION OF L1 AND b min
56
55
LISTING AND STORING IN W
21
A0
|W| = 0?
YES
41
22
NO
MAX BITS EXCEEDED?
YES
41
23
A2
NO
AFFIX ONE EXTRA BIT
24
KEEP IN W WORDS c min
31
A3
YES
|W| = 0?
32
33
NO
SELECT MAX IN W
34
WORDS ADDED
35
46
NO
REQUIRED NUMBER?
YES
51

FIG.2

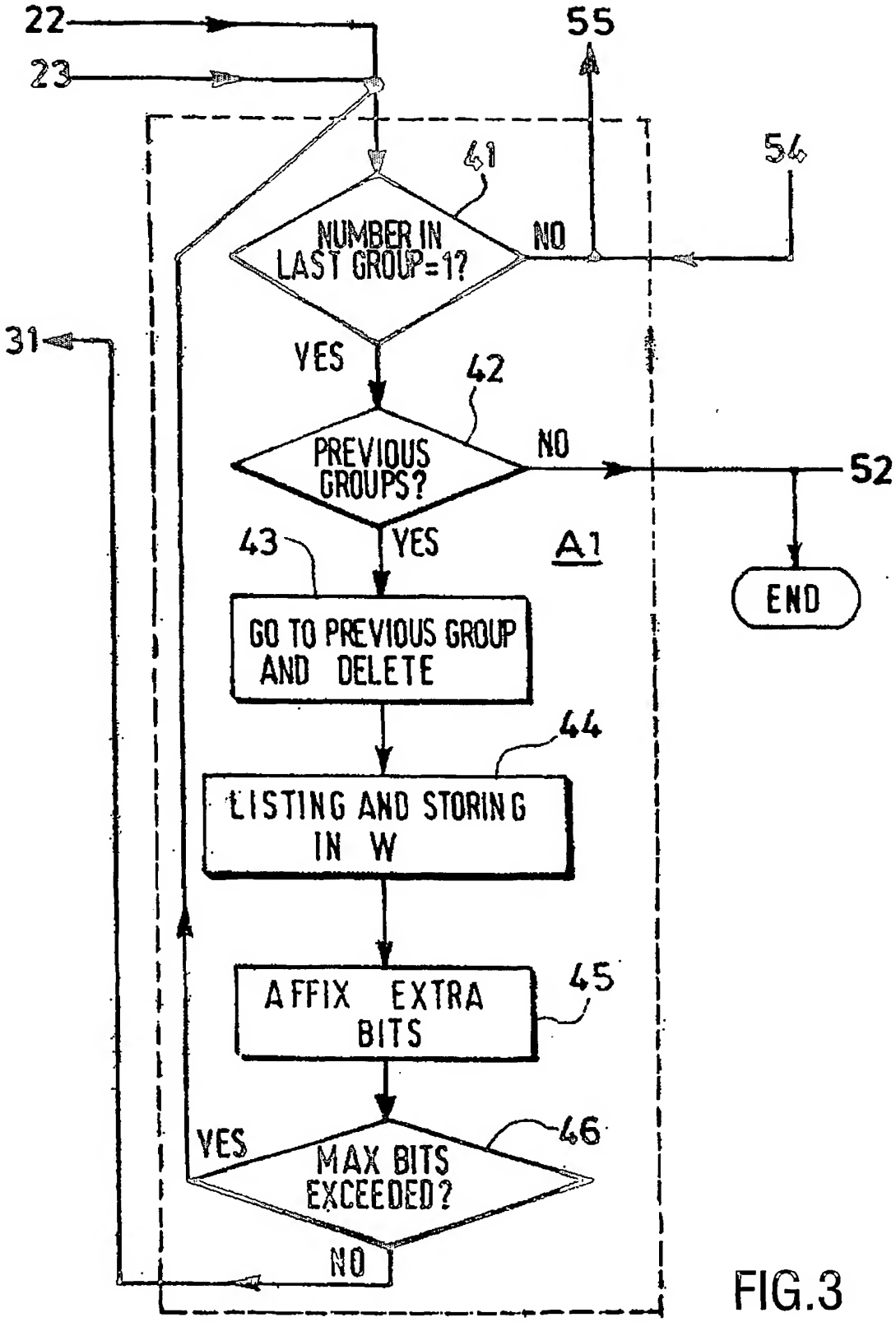

22
23
55
41
NUMBER IN LAST GROUP=1?
NO
56
31
YES
42
PREVIOUS GROUPS?
NO
52
YES
A1
43
END
GO TO PREVIOUS GROUP AND DELETE
44
LISTING AND STORING IN W
AFFIX EXTRA BITS
45
YES
MAX BITS EXCEEDED?
46
NO

FIG.3

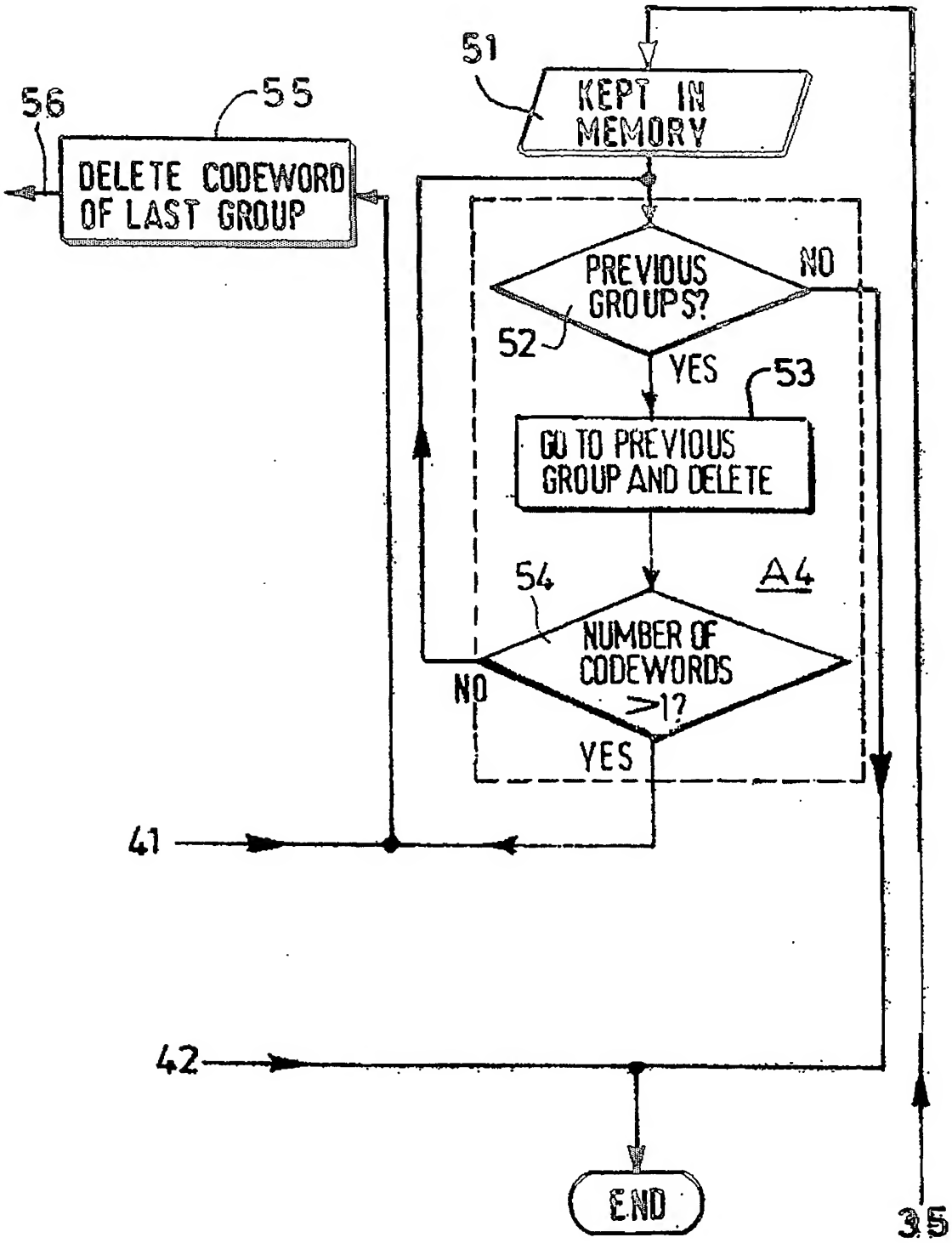

51
KEPT IN MEMORY
56
55
DELETE CODEWORD OF LAST GROUP
PREVIOUS GROUPS?
NO
52
YES
53
GO TO PREVIOUS GROUP AND DELETE
54
A4
NUMBER OF CODEWORDS >1?
NO
YES
41
42
END
35

FIG.4

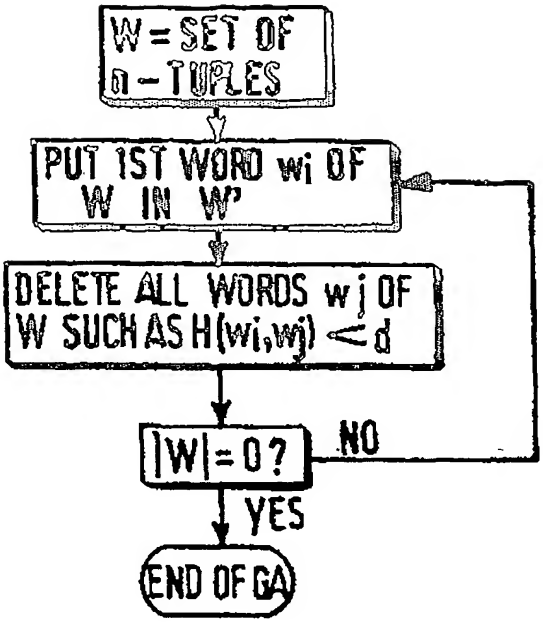

W = SET OF n-TUPLES
PUT 1ST WORD wi OF W IN W'
DELETE ALL WORDS wj OF W SUCH AS H(wi,wj) < d
|W| = 0 ?
NO
YES
END OF GA

FIG.5

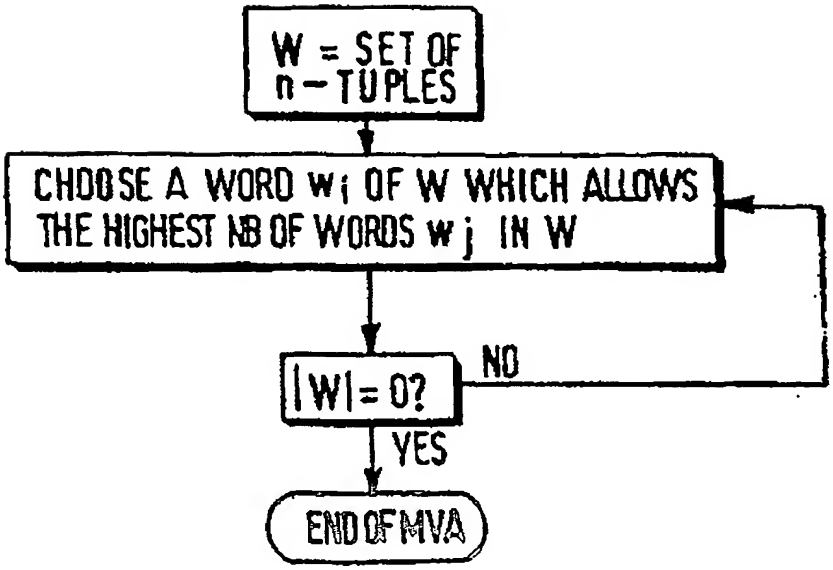
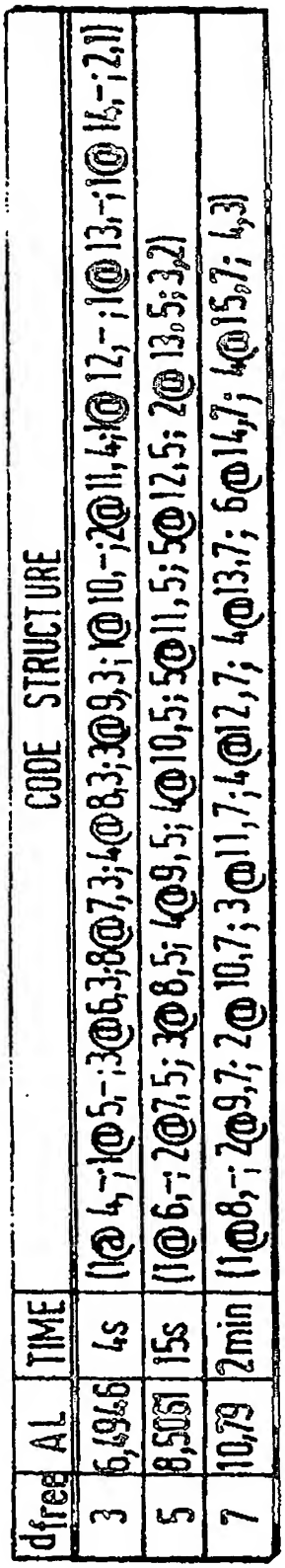

W = SET OF n-TUPLES
CHOOSE A WORD wi OF W WHICH ALLOWS THE HIGHEST NB OF WORDS wj IN W
|W| = 0?
NO
YES
END OF MVA

FIG.7



d_{free}	AL	TIME	CODE STRUCTURE
3	6,4946	4s	(1@4,-1@5,-;3@6,3,8@7,3;4@8,3;3@9,3;1@10,-;2@11,4;1@12,-;1@13,-;1@15,-;2,1)
5	8,5051	15s	(1@6,-;2@7,5;3@8,5;4@9,5;4@10,5;5@11,5;5@12,5;2@13,5;3,2)
7	10,79	2min	(1@8,-;2@9,7;2@10,7;3@11,7;4@12,7;4@13,7;6@14,7;4@15,7;4,3)

FIG.6

d_{free}	AL	TIME	CODE STRUCTURE
3	6,3038	50s	(1@4,-;2@5,4;4@6,3;4@7,3;6@8,3;5@9,3;2@10,4;2@11,3;2,1)
5	8,4752	16min	(1@6,-;1@7,-;4@8,5;5@9,5;5@10,5;5@11,5;5@12,5;3,2)
7	10,7385	14h	(1@7,-;1@8,-;1@9,-;1@10,-;3@11,7;4@12,7;5@13,7;5@14,7;5@15,7;4,3)

FIG.8

SOURCE SYMBOL	PROBABILITY
e	0,1270
t	0,0906
a	0,0817
o	0,0751
i	0,0697
n	0,0674
s	0,0633
h	0,0609
r	0,0599
d	0,0425
l	0,0403
c	0,0278
u	0,0276
m	0,0241
w	0,0236
f	0,0223
g	0,0202
y	0,0197
p	0,0193
b	0,0149
v	0,0098
k	0,0077
j	0,0015
x	0,0015
q	0,0010
z	0,0007

FIG.9

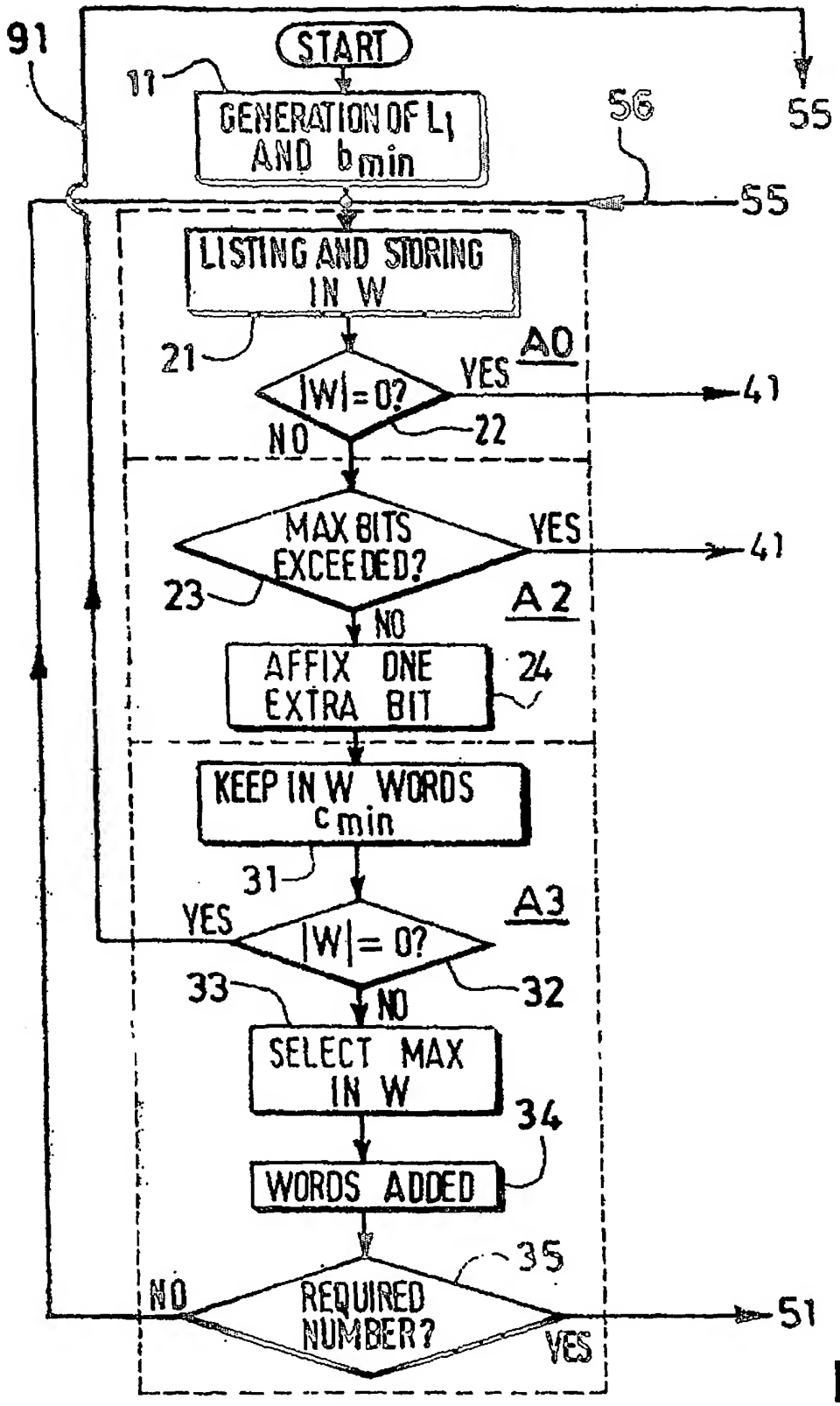

91
START
11
GENERATION OF L_1 AND b_{min}
56
55
55
LISTING AND STORING IN W
21
A0
|W|=0?
YES
41
22
NO
MAX BITS EXCEEDED?
YES
41
23
A2
NO
AFFIX ONE EXTRA BIT
24
KEEP IN W WORDS c_{min}
31
A3
YES
|W|=0?
32
33
NO
SELECT MAX IN W
34
WORDS ADDED
35
NO
REQUIRED NUMBER?
YES
51

FIG.10

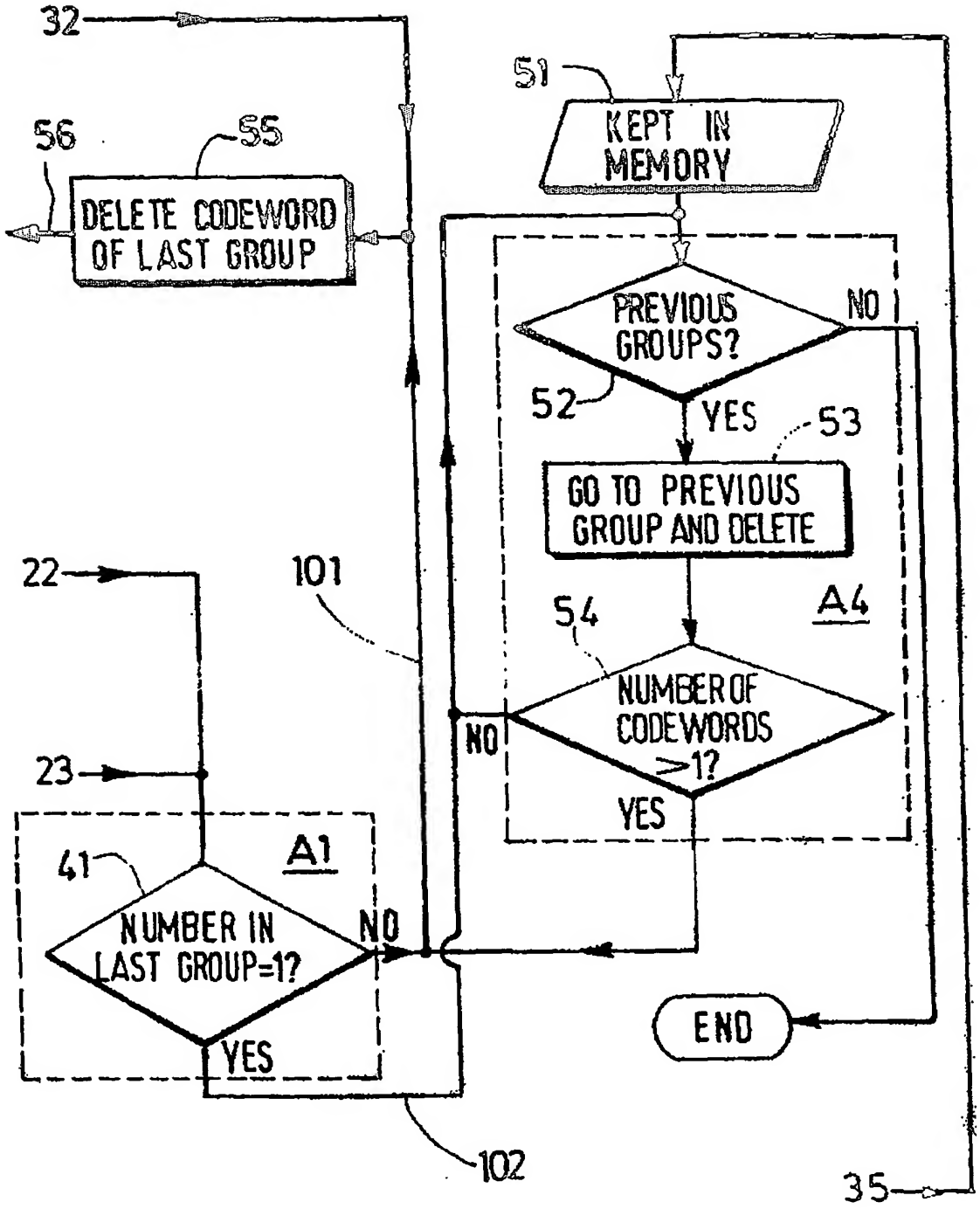

32
51
KEPT IN MEMORY
56
55
DELETE CODEWORD OF LAST GROUP
PREVIOUS GROUPS?
NO
52
YES
53
GO TO PREVIOUS GROUP AND DELETE
22
101
A4
54
NUMBER OF CODEWORDS >1?
NO
YES
23
A1
41
NUMBER IN LAST GROUP=1?
NO
YES
END
102
35

FIG.11

dfree	AL	TIME	CODE STRUCTURE
3	6,3494	42s	(1@4,-;1@5,-;5@6,3;6@7,3;4@8,3;4@9,3;1@10,-;1@12,-;2@13,-;1@16,-;2,1)
5	8,5061	3min	(1@6,-;2@7,5;3@8,5;4@9,5;4@10,5;5@11,5;5@12,5;2@13,5;3,2)
7	10,79	13min	(1@8,-;2@9,7;2@10,7;3@11,7;4@12,7;4@13,7;6@14,7;4@15,7;4,3)

FIG.12

dfree	AL	TIME	CODE STRUCTURE
3	6,3530	17s	(1@4,-;1@5,-;5@6,3;6@7,3;4@8,3;3@9,3;2@10,4;2@11,3;1@12,-;1@13,-;2,1)
5	8,5061	45s	(1@6,-;2@7,5;3@8,5;4@9,5;4@10,5;5@11,5;5@12,5;2@13,5;3,2)
7	10,79	3min	(1@8,-;2@9,7;2@10,7;3@11,7;4@12,7;4@13,7;6@14,7;4@15,7;4,3)

FIG.13

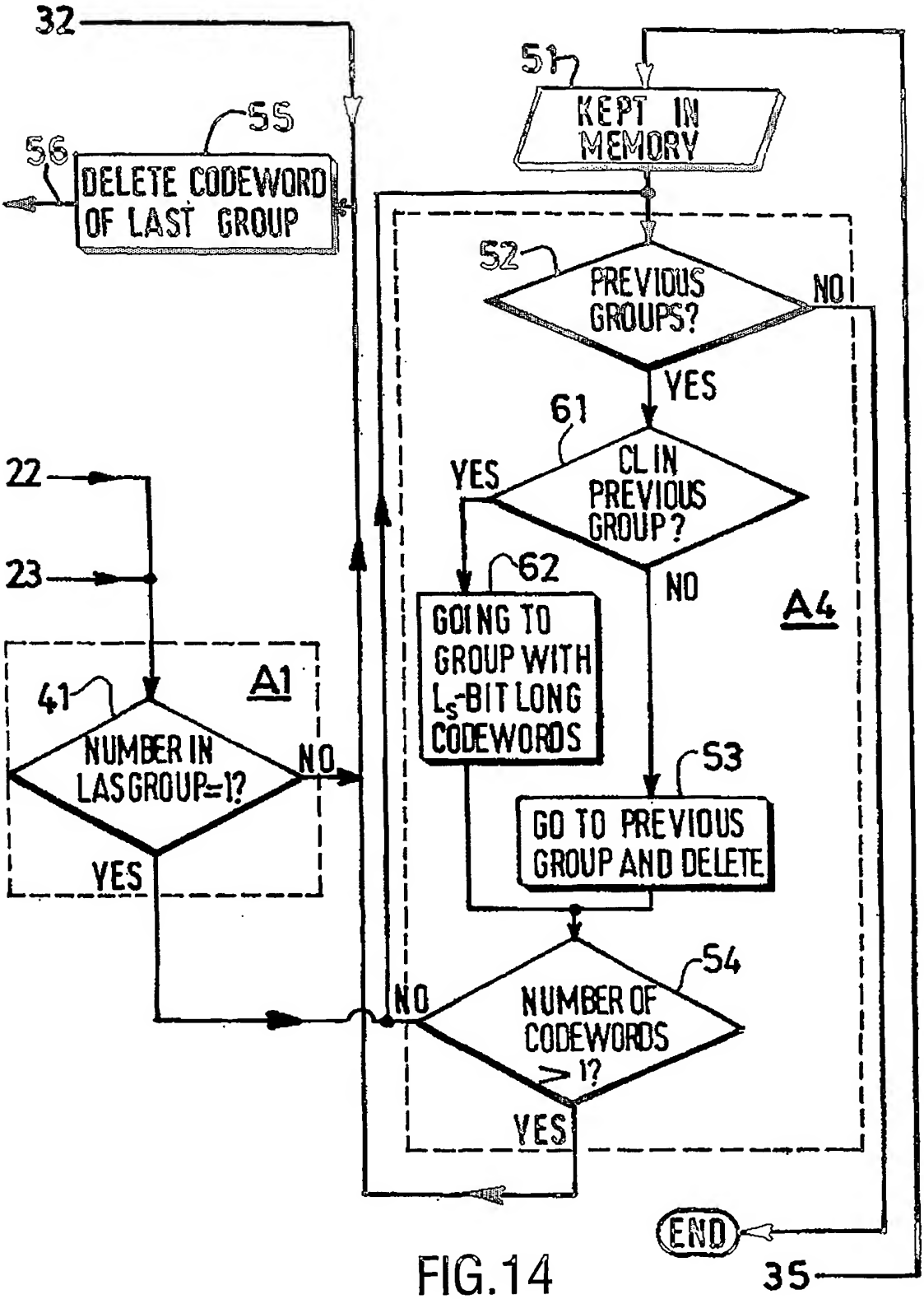

32
51
KEPT IN MEMORY
55
56
DELETE CODEWORD OF LAST GROUP
52
PREVIOUS GROUPS?
NO
YES
61
CL IN PREVIOUS GROUP?
YES
NO
22
23
62
GOING TO GROUP WITH L_s-BIT LONG CODEWORDS
A4
A1
41
NUMBER IN LASGROUP=1?
NO
YES
53
GO TO PREVIOUS GROUP AND DELETE
54
NUMBER OF CODEWORDS > 1?
NO
YES
END
35

FIG.14

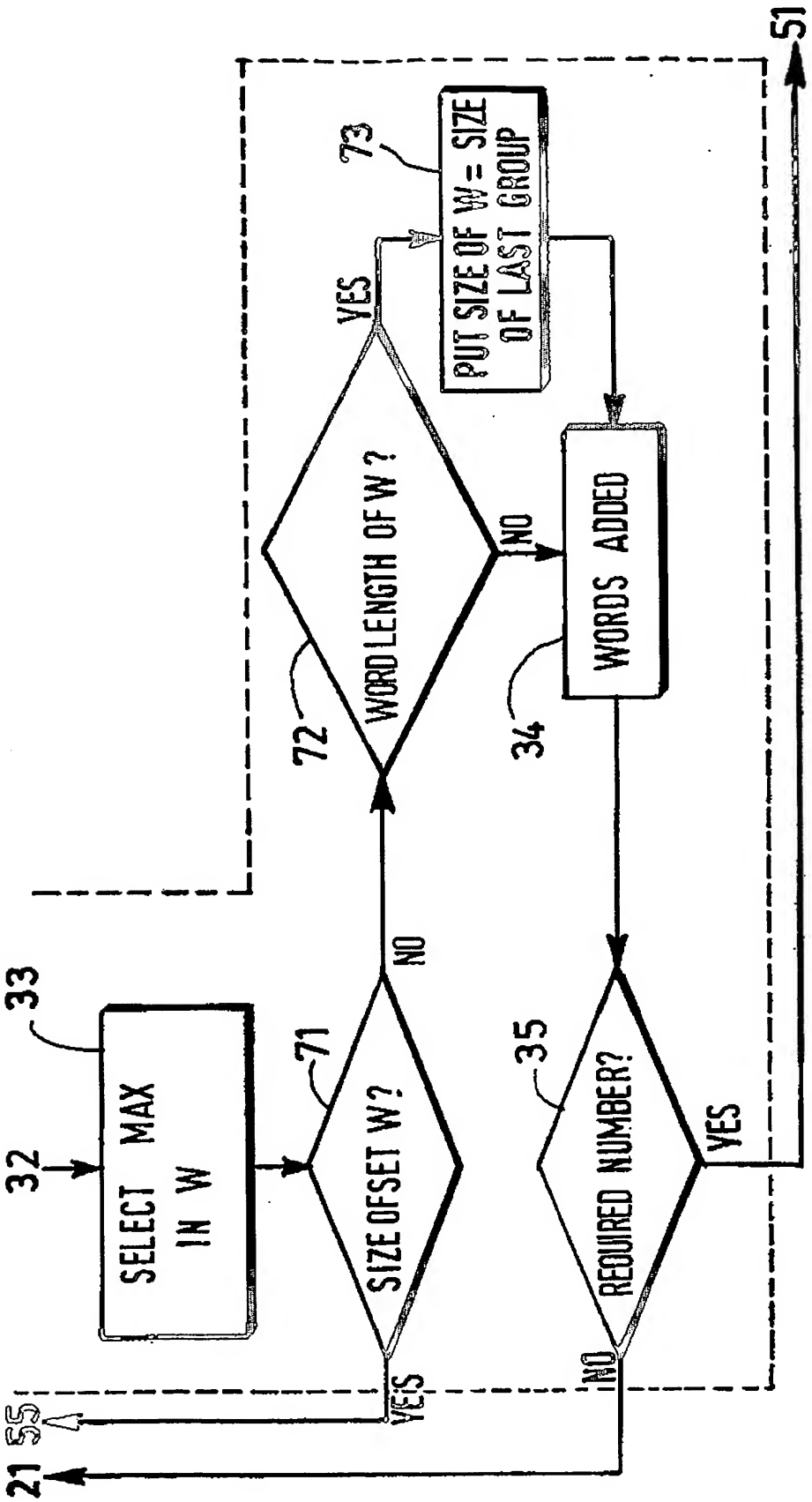

51
73
PUT SIZE OF W = SIZE OF LAST GROUP
YES
WORD LENGTH OF W ?
72
NO
34
WORDS ADDED
33
32
SELECT MAX IN W
71
SIZE OFSET W?
NO
35
REQUIRED NUMBER?
YES
YES
NO
55
21

FIG.15

d tree	Ls->	4	5	6	7	8	9	10	11	12	13	14	15
3	AL	n°	n°	6,6356	6,3650	6,3550	6,3530	6,3530	6,3530	6,3530	6,3530	x	x
(L_1=4, L_{max}=13)	Time	code	code	0,017s	0,08s	0,5s	3s	6,7s	11,5s	17s	17s	x	x
5	AL	x	x	n°	8,5061	8,5061	8,5061	8,5061	8,5061	8,5061	8,5061	x	x
(L_1=6, L_{max}=13)	Time	x	x	code	0,01s	0,03s	0,13s	0,76s	6,8s	45s	45s	x	x
7	AL	x	x	x	x	10,79	10,79	10,79	10,79	10,79	10,79	10,79	10,79
(L_1=8, L_{max}=15)	Time	x	x	x	x	0,02s	0,07s	0,17s	0,6s	2s	12,8s	175s	175s

FIG.16

d tree	Ls->	4	5	6	7	8	9	10	11	12	13	14	15
3	AL	7,832	7,832	6,3654	6,3654	6,3654	6,353	6,353	6,353	6,353	6,353	x	x
(L_1=4, L_{max}=13)	Time(s)	0,002	0,003	0,014	0,051	0,358	2,3	4	5,3	5,5	5,5	x	x
	Lm	5	5	8	8	6	7	7	7	7	7	x	x
5	AL	x	x	8,5061	8,5061	8,5061	8,5061	8,5061	8,5061	8,5061	8,5061	x	x
(L_1=6 L_{max}=13)	Time(s)	x	x	0,004	0,008	0,026	0,113	0,637	5,7	37	37	x	x
	Lm	x	x	11	11	11	11	11	11	11	11	x	x
7	AL	x	x	x	x	10,79	10,79	10,79	10,79	10,79	10,79	10,79	10,79
(L_1=8 L_{max}=15)	Time(s)	x	x	x	x	0,017	0,05	0,122	0,413	1,6	4,9	65	65
	Lm	x	x	x	x	14	14	14	14	14	14	14	14

FIG.17